

**Notification of the Ministry of Commerce**

Regarding Prescription of Type and Characteristic of Meter for Fuel Oil as Paid before Filling, Detail of Materials Used for Manufacture, Maximum Permissible Error and Term of Verification

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In order to prescribe the type and characteristic of the meter for the fuel oil as paid before filling to be clear and standardized, resulting in fairness to all parties pertinent to the purchase – sale, the Weights and Measures Committee had resolution at the meeting No. 1/2562 on Thursday, 25 April B.E. 2562 (2019) to prescribe the type and characteristic of the meter for the fuel oil as paid before filling, the detail of materials used for manufacture, the maximum permissible error and the term of verification.

By virtue of Section 5, paragraph two of Section 8, Section 16, Section 26 and Section 33 of the Measurement Act, B.E. 2542 (1999), as amended by the Measurement Act (No.3), B.E. 2557 (2014), the Minister of Commerce, upon the recommendation of the Weights and Measures Committee, therefore issues this Notification, as follows.

**Article 1.** This Notification shall come into force upon the expiration of ninety days from the date of its publication in the Government Gazette.<sup>1</sup>

**Article 2.** In this Notification :

“Liquid” means the fuel oil;

“Rated Operating Conditions” mean the conditions of the use of the meter which still provide correct results within the maximum permissible errors, e.g. the type of the liquid, the density of the liquid, the viscosity of the liquid, the temperature and the pressure of the liquid, including other stipulations which affect the operation of the meter;

“Base Conditions” mean the states of the liquid which are measured, whereby the measured volume of the liquid is converted according to its condition, namely its base temperature and base pressure, by categorizing the base temperature into 0, 15, 20 and 30 degrees Celsius, and the base pressure is 101.325 kilopascal;

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<sup>1</sup> Published in the Government Gazette, Volume 136, Special Part 276 d, Page 49, dated 11 November B.E. 2562 (2019).

“Metering Conditions” mean the conditions of the liquid which are measured the volume at the time of measurement, namely the temperature and pressure of the liquid during that time;

“System of Measuring Volume of Fuel Oil as Paid before Filling” means the system comprising the meter for the fuel oil, the ancillary device and the associated device;

“Ancillary Device” means the device which is used to perform a particular function for being directly involved in measurement results, e.g. the zero setting device, the printing device, the price indicating device, the overall result indicating device, the conversion device, or the pre-setting device;

“Associated Device” means the part or the device apart from the ancillary device which is necessary to be used to enhance confidence in measurement results correctly, or is intended to help operate the measurement conveniently, or is the device affecting accuracy in the measurement, e.g., a steam cleaner, a filter, a pump, a valve, or a pipe;

“Zero Setting Device” means the part which is used to set the meter to display the zero value;

“Indicating Device” means the part of the meter which is used to display the value of material volume as measured;

“Principal Scale Mark” means the value which is displayed as the unit of the volume of difference between two consecutive values as displayed;

“Flowrate :  $Q$ ” means the volume of the liquid passing through the meter and the time taken for this volume to pass through the meter;

“Maximum Flowrate :  $Q_{\max}$ ” means the highest flowrate at which the meter can operate without damaging the meter, and the deviation of the measurement of volume of the meter not exceeding the maximum permissible errors as specified;

“Minimum Flowrate :  $Q_{\min}$ ” means the lowest flowrate at which the meter can operate, by the deviation of the meter not exceeding the maximum permissible errors as specified;

“Maximum Permissible Error : MPE” means the value of the extreme deviation of the meter as permitted.

## Title 1

Gauge Being Subject to Measurement Act, B.E. 2542 (1999),  
as Amended by Measurement Act (No. 3), B.E. 2557 (2014)

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**Article 3.** The meter for the fuel oil as paid before filling for the use in retail, which has a spare tank of fuel oil with a size not greater than 400 litres, shall be the gauge being subject to the Measurement Act, B.E. 2542 (1999), as amended by the Measurement Act (No. 3), B.E. 2557 (2014).

The meter for the fuel oil as paid before filling is the gauge which is designed to measure and discharge the liquid by volume and which has the indicating device to display the measurement result by measuring and discharging the liquid from a tank containing the liquid with a size not greater than 400 litres after making a payment through a vending machine by putting coins, inserting a banknote or a credit card without the approval of the possessor of the meter.

## Title 2

Characteristic, Detail of Materials Used for Production, Maximum Permissible Error  
and Term of Verification

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### Chapter 1

General Provisions

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**Article 4.** The meter for the fuel oil as paid before filling which is used in purchasing – selling or exchanging goods with other persons, or providing the service of measurement or using the meter for the benefit of calculating considerations, taxes and fees, shall have the feature as specified in this Notification.

In case of any person who wishes to produce or import the meter, the feature of which differs from that as specified in this Notification, the meter shall be examined by the Central Bureau. If the result of examination appears that the standard feature of the aforesaid meter does not differ that as specified in this Notification and the meter is approved by the Minister of Commerce, a competent official is required to provide verification for the aforesaid meter.

**Article 5.** The meter for the fuel oil as paid before filling shall be produced permanently. In addition, it shall not be simply used as a tool of fraud.

The meter for the fuel oil as paid before filling shall be produced from good materials. In addition, it shall be designed and produced in a manner that when it is used as usual, it can always operate accurately. The components of the meter can operate continuously without defect, bend or deformation, which affects the accuracy of the meter. In case of adjusting the meter, the adjusted meter is required to maintain the condition of accuracy appropriately.

In case of necessity, the Central Bureau may test the prototype of the meter in accordance with rules, procedures and conditions as stipulated by the Minister, upon the recommendation of the Committee.

**Article 6.** The meter for the fuel oil as paid before filling shall display the following details on the instrument. Such details shall be easy to read, clear and indelible.

- (1) a name or a trademark of a producer, an importer or a seller,
- (2) a model which is specified the form of an instrument,
- (3) a series number of an instrument which is specified by a competent official.

The provision under paragraph one shall not be applied to the component which is separated from the meter and necessary to the measurement including not affecting the accuracy of the measurement, or the meter which cannot display the aforesaid details because of the state of the meter or because of the display being possible to damage the meter.

**Article 7.** The accuracy of the meter for the fuel oil as paid before filling shall be subject to the maximum permissible errors as specified in this Notification.

The maximum permissible errors for providing the initial verification and the subsequent verification shall be subject to the stipulation in Article 17.

The maximum permissible errors for the examination of the used meter shall be two times of the maximum permissible errors for providing the initial verification.

**Article 8.** The meter for the fuel oil as paid before filling shall have the indicating device in a satisfactory manner and in a sufficient number for operation.

**Article 9.** The display of value of the meter for the fuel oil as paid before filling shall have the following characteristics.

(1) Display of Value in Type of Digital Indication

(a) The display of value, whether using numbers, alphabets or other symbols unitedly or not, shall not cause confusion in reading the value.

(b) If there are many places of the indicating device, every place shall display the same value.

(c) If there is the printing device, the value of printing shall be consistent with the value of displaying.

(2) In case of displaying the value of the meter which can calculate the price, the sum of money shall be consistent with the volume of the measurement as displayed.

**Article 10.** The inscriptions of all of the controllers for operation, the indicating device and other equipment, including the switch of the meter for the fuel oil as paid before filling shall be made to be easy to read, clear and indelible.

**Article 11.** The meter for the volume of the fuel oil as paid before filling shall provide a space for a tamper-evident seal so as to prevent unauthorized alterations after the examination and verification. The meter shall be modified or repaired after the seal is destroyed.

**Article 12.** In the case where there is a software program to be used with the meter for the fuel oil as paid before filling, and the aforesaid program results in the accuracy of the meter,

(1) the program shall neither cause the accuracy of the meter to deviate exceeding the maximum permissible errors, nor express, print, calculate or record the value of the measurement result to deviate exceeding the maximum permissible errors after the examination and verification, and there shall be protection methods to prevent the modification or the adjustment of the program by means of a mechanical seal or an electronic seal, e.g. an audit trail, or both methods together,

(2) the business operator of the meter or the possessor is required to display a name, a model and a software identification relating to the program on the indicating device and/or the value recording device every time of closing or opening the meter, or such data can be seen when an user or a relevant person requires,

(3) the business operator of the meter or the possessor is required to produce a complete guidebook to use the program in accordance with the use of the meter, and the guidebook shall always be presented to a competent official or the Weights and Measures Inspector for inspection.

In case of a software program to be used with the device which is extended further away from the meter, the business operator of the meter or the possessor shall take the following actions :

(1) to inform to a name, a model and a software identification relating to the program together with a product owner including other details to a competent official at the Central Bureau or the Branch Bureau within 15 days as from the date of the completion of installation,

(2) to display a name, a model and a software identification relating to the program and necessary information on the extended device clearly and indelibly.

## Chapter 2

### Meter for Fuel Oil as Paid before Filling

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**Article 13.** The system of measuring the volume of the fuel oil as paid before filling shall have the following characteristics.

(1) It consists of a vending machine by putting coins, inserting a banknote or a credit card, or uses the pre-setting method of a sum of money and/or a volume of discharge which shall have the following characteristics.

(a) It has the indicating device to display all the money which the meter receives when there is the discharge of the oil in each time, such a device is installed on the body of the meter in position which can be easy to read and clear to see.

(b) It has the pre-setting control system or mechanism for stopping the discharge of the fuel oil installed at the body of the meter.

(2) It shall have a spare tank containing the liquid to be discharged within a discharging unit.

(3) The discharge shall be made at the maximum flowrate not exceeding 20 litres per minute.

(4) The system of measuring the volume of the fuel oil as paid before filling shall have the zero setting device for the indicating device to display the value of volume and for the price indicating device.

(5) The discharge of the liquid shall not be made by using equipment which can generate air pressure within a fuel oil tank.

(6) The meter for the fuel oil as paid before filling shall be used to match the type of the liquid which is specified in the details to be displayed under Article 18.

(7) There shall be the installation of grounding system when it is installed and ready to use.

(8) If the system of measuring the volume of the fuel oil as paid before filling is equipped with a computer system or the associated device through the external signal connection equipment, the computer system and the associated device shall not cause the errors of measurement result and data. In addition, such devices shall not be able to transmit an order or data to the system of measuring the volume of the fuel oil as paid before filling to cause the meter to display, to print, to calculate or to record the value of the measurement result to be different from a situation where there is no such equipment connected to the system of measuring the volume of the fuel oil as paid before filling. Besides, the provision for sealing the aforesaid external signal connection equipment shall be made.

(9) It is designed for production and use with intention to measure the volume pertinent to the purchase – sale of the liquid by the meter for the fuel oil as paid before filling only.

**Article 14.** The indicating device and the printing device of the meter for the fuel oil as paid before filling shall have the following characteristics.

(1) The main indicating device shall be provided.

(2) The indicating device shall display the name or symbol of the unit of measurement. The principal scale mark shall display the value in the form  $1 \times 10^k$ ,  $2 \times 10^k$  or  $5 \times 10^k$ , whereby  $k$  is a positive or negative whole number or zero.

(3) Digital Indicating Device

(a) The digital indicating device shall display the measurement result continuously at the time of measuring the volume of the liquid for the purchase – sale purpose.

(b) The volume of the most diminutive principal scale mark of the indicating device shall have the value not exceeding 10 millilitres.

(c) In the case where the meter is switched on, the indicating device shall display all the symbols which can be displayed.

(4) Zero Setting Device for Volume Indicating Device

(a) The zero setting device can be adjusted by hand or by an automatic system.

(b) At the beginning of setting zero, the volume indicating device to display the value of volume shall not display the result to be different from the previous measurement result, and shall display the zero value upon the completion of setting zero.

(c) The zero setting device shall not cause any change to the measurement result, except for a change to the display of the zero value.

(d) At the time of measuring, there shall be no means to be capable of adjusting the volume indicating device to display the zero value.

(e) In case of the digital indicating device, the display of the value of volume after the completion of setting zero shall not deviate, and shall display the zero value only.

(5) Prior to discharging, the volume indicating device to display the value of volume and the total purchase price indicating device shall display the zero value. And when the discharge starts, the indicating device to display the value of volume and the total purchase price indicating device shall display the volume of the discharge at that time on the indicating device.

(6) For the multi-systems of measuring the volume of the fuel oil as paid before filling which share the same indicating device, such indicating device shall display the volume via the only one single system.

(7) In the case where the difficulties of an electricity source cause the operation of the system of measuring the volume of the fuel oil as paid before filling to fail, the meter for the liquid as paid before filling shall further display the value of the measurement result of the volume and the total purchase price uninterruptedly for at least 5 minutes.

(8) Price Calculating Device

(a) The meter which can calculate the price shall correctly display the price per unit corresponding with its product type before every discharge.

(b) The price calculating device shall compute the total price according to the price per unit of the purchase – sale in each time while measuring.

(c) In displaying the total purchase price according to any volume as discharged, the price calculating device shall display the value accurately by providing the deviation of positive or negative side not exceeding than a multiple of 0.01 litre with the price per unit.

(d) In displaying the price per unit, in the case where each meter is used to measure the volume of the discharge of different products but the same indicating device is shared, before measuring the volume of the discharge of any product in each time, the indicating device shall display the price per unit of such a product. And while measuring, there shall be no means to be capable of adjusting the display of the price per unit.

(e) As for the display of the total volume and the total purchase price in each purchase – sale, after the completeness of the measurement of the discharge volume, the indicating device shall display the total discharge volume and the total purchase price at least 5 minutes or until the next purchase – sale.



(f) In the case where the oil discharging equipment is equipped with the printing device, the data printing of the discharge of the product shall have the details as follows:

- 1) the total volume of the discharge,
- 2) the price per unit,
- 3) the total purchase price,
- 4) the type of product, i.e. name, symbol, acronym or code.

**Article 15.** The system of the meter for the fuel oil as paid before filling shall have the ancillary device and the associated device having the following characteristics.

(1) There shall be fume and air eliminators or other automatic systems preventing fume or air from entering into the meter while operating.

(2) There shall be valves or other systems preventing the liquid from flowing back into the meter.

(3) There shall be the mechanism for stopping the discharge.

(a) The mechanism can stop the discharge accurately, and in the case where the meter has the pre-setting device, upon stopping the discharge, the indicating device shall display the total purchase price to be the same as the value as preset;

(b) The stop setting device shall make the stopping mechanism to be capable of adjusting the distance of stop so that the volume of the discharge shall be in a specified scope.

(4) As for the device for measuring the level of the liquid in a storage tank, when the level of the liquid decreases, which adversely affects the accuracy of measurement, the system of the meter for the fuel oil as paid before filling can stop operating automatically, or there is a warning signal in a clear manner and the system is ready to stop the discharge of the liquid.

**Article 16.** The discharge pipe and valve in the system of the meter for the fuel oil as paid before filling shall have the following characteristics.

(1) The liquid which has already been measured the volume shall not leak out from a measuring unit or the discharge pipe.

(2) In case of more than two way pipes being installed, there shall be the automatic system for the following purposes.

(a) While discharging, the liquid shall flow through the only single discharge channel.

(b) The discharge controlling device shall clearly display the flowing direction.

(3) The shortcut or bypass pipe without flowing through the meter for the fuel oil as paid before filling is prohibited.

**Article 17.** The maximum permissible errors for providing the initial verification and the subsequent verification of the meter for the fuel oil as paid before filling shall have both positive and negative sides in accordance with the stipulations as follows:

| Volumes as Tested (V)<br>(litre) | Maximum Permissible Errors |
|----------------------------------|----------------------------|
| 0.2 to 0.4                       | 4 millilitres              |
| 0.4 to 1.0                       | 0.01 V                     |
| 1.0 to 2.0                       | 10 millilitres             |
| starting from 2 upward           | 0.005 V                    |

**Article 18.** The system of the meter for the fuel oil as paid before filling shall clearly and indelibly display the following details.

- (a) a year of production,
- (b) the minimum discharge volume and the maximum discharge volume,
- (c) the minimum flowrate and the maximum flowrate,
- (d) the minimum and maximum pressures of the liquid,
- (d) the type of the measured liquid,

**Article 19.** The meter for the fuel oil as paid before filling shall have the term of verification for 2 years as from the date of providing the verification.

The meter for the fuel oil as paid before filling which is verified by a repairer shall have the term of verification for 60 days as from the date of providing the verification.

This shall be enforced henceforth.

Given on the 2<sup>nd</sup> Day of October B.E. 2562 (2019)

Jurin Laksanawisit

Minister of Commerce